

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is requested. Claims 16-30 and 32-36 are in this application. Claims 1-15 and 31 have been cancelled. Claims 16-17 and 30 have been amended, not in view of the prior art, but to alternately claim the present invention. Claim 23 has been withdrawn.

The Examiner rejected claims 17-18 and 25 under 35 U.S.C. §112, second paragraph. Specifically, the Examiner stated:

"[t]hese claims all have limitations regarding an implied vertical orientation of the first and second openings (e.g., "vertical separation"; "vertical distance", "above" and "below" etc). Claim 16 has no language that places the openings in a vertical orientation. It is unclear which, if any of the claims are claiming, positively, vertically spaced openings in a vertical side wall of the cabinet."

Applicant is respectfully unclear as to the basis of the Examiner's rejection. However, in order to further prosecution, claim 17 has been amended to positively recite that the first and second air openings are vertically spaced apart. Claim 18 depends from claim 17 and therefore also positively recites that the openings are vertically spaced apart.

With respect to claim 25, applicant can find nothing that is related to the orientation of the first and second air openings. Claim 25 recites:

"wherein a distance between the second air opening in the exterior plate and the second mounting openings in the exterior plate that lie above the second air opening in the exterior plate, and a distance between the second air opening in the exterior plate and the second mounting openings in

the exterior plate that lie below the second air opening in the exterior plate are substantially equal."

Thus, claim 25 recites that the mounting openings that lie above and below the second air opening are spaced substantially the same distance from the second air opening. Therefore, since claims 17-18 positively recite a vertical separation, and claim 25 is unrelated to the orientation of the first and second air openings, claims 17-18 and 25 are believed to satisfy the requirements of the second paragraph of section 112.

The Examiner rejected claims 16-22, 24-25, 27-30, and 36 under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of any one of Kormos (DE 197 09 145), Jiyosefu (JP 03-250698), Vidacovich (WO 02/32202), Woods (U.S. Patent Publication No. 2003/0085025), or Mikuriya (JA 59-56695) and Holthouse (U.S. Patent No. 2,372,897). For the reasons set forth below, applicant respectfully traverses this rejection.

Claim 16 recites:

An electronics cabinet comprising:  
an enclosure, an exterior surface of the enclosure having:  
    a first air opening,  
    a second air opening,  
    a number of first mounting openings formed around the first air opening, a first mounting opening lying directly between the first air opening and the second air opening, and  
    a number of second mounting openings formed around the second air opening, the second mounting openings not being formed around the first air opening, a second mounting opening lying directly between the first air opening and the second air opening; and  
    a heat exchanger attached to the enclosure such that an interior of the enclosure and an interior region of the heat exchanger form an air tight and water tight unit that passes air through the first and second air openings, no part of the heat exchanger extending into the enclosure.

In rejecting the claims, the Examiner pointed to FIGS. 2 and 3 of Holthouse as teaching the use of bolts (securing means) 19 that are positioned all the way around the periphery of an opening (outlet) 23 that extends through a back wall 12 of a trailer 10. In view of this, the Examiner appears to suggest that Holthouse teaches that positioning bolts all the way around the periphery of an opening provides a tighter seal and a more reinforced construction.

The Examiner then appears to argue that, in view of the teachings of Holthouse, one skilled in the art would have been motivated to position a number of bolts around the lower and upper air openings in the cabinets in each of the other references cited by the Examiner to provide a tighter seal and a more reinforced construction.

Thus, applicant assumes that the Examiner has read the lower and upper air openings in each of the other references cited by the Examiner to be the first and second air openings, respectively, of the claims. Applicant also assumes that the Examiner has argued that, even though the other references cited by the Examiner do not teach positioning a number of bolts (that pass through bolt openings which can be read to be the first and second mounting openings of the claims) around the lower and upper air openings (read to be the first and second air openings of the claims) in the electronics cabinets, one skilled in the art would be motivated to do so to provide a tighter seal and a more reinforced construction.

Applicant, however, has been unable to find any teaching or suggestion that the seals between the cabinets and heat exchangers in the other references cited by the Examiner suffer from any leakage issues that would require a tighter seal and a more reinforced construction. One skilled in the art would not be motivated to solve a problem that does not exist, and would therefore not be motivated to provide a

tighter seal and a more reinforced construction without some indication that the seal was leaking.

In addition, applicant notes that the required "tightness" of a seal is a function of the pressure that the seal will experience during operation. When an air tight seal is required, a much tighter seal and reinforced construction are required in a high pressure setting, such as with compressed air, than is required in a low pressure setting.

Therefore, although an air-to-air heat exchanger requires an air tight seal, an air-to-air heat exchanger does not require a tighter seal and more reinforced construction because of the low air pressures that are involved. Thus, since an air-to-air heat exchanger does not require a tighter seal and more reinforced construction due to the low air pressures involved, one skilled in the art would not be motivated to position bolt openings around the lower and upper air openings of the other references cited by the Examiner in view of Holthouse to obtain a tighter seal and more reinforced construction.

With specific respect to Kormos (DE '145), the Examiner pointed to FIGS. 1-2 and 8-10 as teaching a heat exchanger that is mounted to an electronics cabinet. In addition, the Examiner appears to point to the lower and upper air openings in plate 4 shown in FIG. 2 of Kormos as constituting the first and second air openings required by claim 16.

Further, the Examiner pointed to "fastening means" 43 shown in FIGS. 1 and 7 of Kormos, and argued that "fastening means" 43 appear to accept a bolt that passes through an opening in "fastening means" 43 and an opening in plate 4 of the cabinet. Applicant assumes the Examiner read the opening in plate 4 that accepts the bolt to be a first mounting opening.

The Kormos reference, however, fails to teach or suggest the positioning of a "fastening means" 43 that lies directly between the lower and upper air openings.

Thus, the Kormos reference also fails to teach or suggest the formation of a bolt opening in plate 4 that lies directly between the lower and upper air openings to accommodate the fastening means 43. As a result, there is no bolt opening in plate 4 which can be read to be the first mounting opening required by claim 16.

Further, it is not possible to position a fastening means 43 directly between the lower and upper air openings in plate 4. Applicant notes that the fastening means 43 shown in FIGS. 1 and 7 of Kormos are attached to the outer side of the heat exchanger, which covers both the lower and upper air openings. Since the fastening means 43 are attached to the outer side of the heat exchanger, and the outer side does not lie directly between the lower and upper air openings, it is not possible for a fastening means 43 to be positioned to lie directly between the lower and upper air openings in plate 4.

Since it is not possible for a fastening means 34 to lie directly between the lower and upper air openings, then it is also not possible for there to be a corresponding bolt opening in plate 4 which can be read to be the first mounting opening required by claim 16. Since it is not possible for there to be a bolt opening in plate 4 which can be read to be the first mounting opening, it is not possible to modify Kormos (DE '145) in view of Holthouse (U.S. '897).

With respect to Jiyosefu (JP '698), the Examiner appears to point to the air passages 28 and 30 in plate 26 shown in FIG. 10 of Jiyosefu as constituting the first and second air openings required by claim 16, and the apertures 24 in plate 26 shown in FIG. 10 of Jiyosefu as constituting the first and second mounting openings required by claim 16.

The Jiyosefu reference, however, fails to teach or suggest the formation of any apertures 24 in plate 26 that lie directly between the air passages 28 and 30. As a result, there is no aperture 24 in plate 26 which can be read to be the first mounting opening required by claim 16. Further, it is not possible to position an

aperture 24 shown in FIG. 10 of the Jiyosefu reference to be directly between the air passages 28 and 30.

Applicant notes that the apertures 24 in plate 26 shown in FIG. 10 of Jiyosefu correspond with the openings in two flanges that extend along the opposite sides of the heat exchanger. In addition, neither of the two flanges extends over the region directly between the air passages 28 and 30. Since the apertures 24 correspond with the two flanges, which do not extend over the region between the air passages 28 and 30, it is not possible for an aperture 24 to be positioned to lie directly between the air passages 28 and 30 (read to be first and second air openings of the claims).

Since it is not possible for an aperture 24 to lie directly between the air passages 28 and 30, then there is no aperture 24 which can be read to be the first mounting opening required by claim 16. Since it is not possible for there to be an aperture 24 in plate 26 which can be read to be the first mounting opening, it is not possible to modify Jiyosefu (JP '698) in view of Holthouse (U.S. '897).

With respect to Vidacovich (WO '202), the Examiner pointed to plenums 21 and 23 shown in FIG. 5 of Vidacovich as being sealed to the outside of panel 22. Applicant assumes the Examiner also read openings 37 and 35 shown in FIG. 4 of Vidacovich to be the first and second air openings, respectively, that are required by claim 16.

However, as shown in FIG. 4 of Vidacovich, there are no openings in plate 22 which can be read to be the first mounting opening and the second mounting opening required by claim 16. Further, on page 7, lines 8-14, Vidacovich teaches the use of a silicon sealant to provide an air tight connection. In addition, there is nothing in Vidacovich that teaches or suggests that the silicon sealant is ineffective.

Since Vidacovich teaches the use of a silicon sealant to provide an air tight connection, and there is nothing in Vidacovich that teaches or suggests that the

silicon sealant is ineffective in a low pressure setting, there is no reason why one skilled in the art would want to incorporate a large number of bolts into a structure to solve a problem that does not exist. Thus, one skilled in the art would not be motivated to modify Vidacovich (WO '202) in view of Holthouse (U.S. '897).

With respect to Woods (US '025), the Examiner appears to point to the lower and upper apertures in the door shown in FIG. 4 of Woods as constituting the first and second air openings of claim 16. More specifically, FIG. 4 of Woods "is a view of the door and heat exchanger from the interior of the door." (See paragraph 0035 of Woods.) However, as shown in FIG. 4 of Woods, there are no openings in the door which can be read to be the first mounting opening.

In addition, when comparing FIG. 5, which shows the heat exchanger, with FIG. 4, it can be seen that the heat exchanger is merely placed into two (lower and upper) rectangular-shaped openings that are formed in the door. As a result, to form a seal between the heat exchanger and the two openings in the door, a silicon sealant or similar material must be used.

It can further be seen that it would be pointless to form mounting openings around the two openings in the door shown in FIG. 4 of Woods because there would be no heat exchanger structure behind many of the mounting openings to accept a fastener. Thus, one skilled in the art would not be motivated to modify Woods (US '025) in view of Holthouse (U.S. '897).

With respect to Mikuriya et al. (JP '695), the Examiner appears to point to the lower and upper apertures in plate 1 shown by the arrows in FIG. 1A of Mikuriya as constituting the first and second air openings of claim 16. In addition, the Examiner noted that no connection means are illustrated.

However, the heat exchanger in FIG. 1A of Mikuriya is similar to the heat exchanger in Kormos (DE '145). Thus, it does not appear to be possible for a mounting opening to be attached to the outer side of the heat exchanger and also lie

directly between the upper and lower openings in plate 1. Since it is not possible for there to be an opening in plate 1 which can be read to be the first mounting opening, it is not possible to modify Mikuriya (JP '695) in view of Holthouse (U.S. '897).

Thus, in view of the above, claims 16-22, 24-25, 27-30, and 36 are patentable over Kormos (DE '145) in view of Holthouse (U.S. '897), Jiyosefu (JP '698) in view of Holthouse (U.S. '897), Vidacovich (WO '202) in view of Holthouse (U.S. '897), Woods (U.S. '025) in view of Holthouse (U.S. '897), and Mikuriya (JA 59-56695) in view of Holthouse (U.S. '897).

The Examiner rejected claim 21 under 35 U.S.C. §103(a) as being unpatentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897) and further in view of Reinhard (U.S. Patent No. 4,386,651). As noted above, claim 16 is patentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897). Claim 21 indirectly depends from claim 16 and, as a result, is patentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897) and further in view of Reinhard (U.S. '651) for the same reasons that claim 16 is patentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897).

The Examiner rejected claims 24-30 and 32-35 under 35 U.S.C. §103(a) as being unpatentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897) and further in view of Koltuniak U.S. Patent No. 3,396,780). In rejecting the claims, the Examiner appears to argue that Kormos (DE '145), Jiyosefu (JP '698), Vidacovich

(WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897) teach all of the limitations of claim 16.

However, as indicated above, claim 16 is patentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897). As a result, since claims 24-30 and 32-35 depend from claim 16, claims 24-30 and 32-35 are patentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), and Mikuriya (JA '695) in view of Holthouse (U.S. '897) and further in view of Koltuniak for the same reasons that claim 16 is patentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897).

With further respect to claim 26, this claim recites:

"a size of the second air opening in the exterior surface being less than a size of the second air opening in the exterior plate; and

"a size of the first air opening in the exterior surface and a size of the first air opening in the exterior plate are substantially equal."

In rejecting the claims, the Examiner pointed to Koltuniak, and argued that it would have been obvious to have added screens 64 and 70 of Koltuniak to the upper and lower air openings in an electronics cabinet of any of the other references to prevent dust and debris from entering the cabinet when the heat exchanger is removed for servicing. However, one skilled in the art would not be motivated to place screens over the lower and upper air openings in a cabinet because the screens would substantially reduce the heat that can be removed from the cabinet.

If screens were placed over the lower and upper openings in plate 4 of Kormos, the screens would significantly impede the flow of air through the heat exchanger. Reducing the flow of air through the heat exchanger reduces the heat

load that can be removed from the cabinet which, in turn, can lead to the failure of the electronic components within the cabinet.

In addition, the screens would not prevent any dust from entering the cabinet, and would not effectively prevent any debris from entering the cabinet. Screens would not effectively prevent any debris from entering the cabinet because debris can enter the cabinet when the cabinet is opened for servicing. One skilled in the art would not be motivated to take costly steps to prevent debris from entering a cabinet when a heat exchanger is serviced if debris can easily enter the cabinet when the components inside the cabinet are serviced.

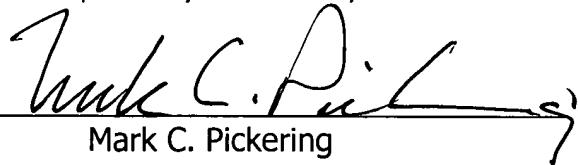
In the present case, debris can easily enter the cabinet each time the doors are opened to service or replace the electronic components in the cabinet. Thus, one skilled in the art would not be motivated to place screens over the lower and upper air openings in a cabinet because these costly steps do not prevent debris from entering the cabinet through the open doors, do not prevent dust from entering the cabinet, and significantly reduce the heat load that can be removed from the cabinet. Thus, from what can be determined, claim 26 is patentable over Kormos (DE '145), Jiyosefu (JP '698), Vidacovich (WO '202), Woods (U.S. '025), or Mikuriya (JA '695) in view of Holthouse (U.S. '897) and further in view of Koltuniak for these additional reasons.

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Thus, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

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AMENDMENT IN RESPONSE TO OFFICE  
ACTION MAILED OCTOBER 10, 2006

Atty. Docket No. 200-66701  
(PB040050AF)